

REMARKS/DISCUSSION OF ISSUES

Claims 1, 2 and 4-8 are pending in the application. Claims 1 and 6 are currently amended. Claim 3 is cancelled.

Claims 1-4 and 6-8 stand finally rejected under 35 USC 103(a) as being unpatentable over Hertz in view of Noda and Wang.

Claims 1 and 6 are currently amended to incorporate the limitations of claim 3, and claim 3 is cancelled.

As currently amended, claims 1 and 6 now require that the cross-section of the fluid jet in the direction of the focused beam be smaller than that in the direction transversely thereof. None of the cited references teach or suggest a fluid jet as a target having such a cross-section.

Hertz discloses a method and apparatus for generating X-rays in which a pulsed laser beam is focused on a target in the form of a jet of liquid. Hertz teaches that this jet is forced through a nozzle and has essentially the same diameter as the nozzle. See col. 4, lines 9-13. Thus, the jet has a circular cross-section.

Noda discloses an apparatus for producing soft X-rays using a high energy laser beam directed on a fluid target comprising a series of discontinuous droplets of liquid, which are formed at the open end of an inlet tube (2), although Noda points out that the droplets could be replaced by a continuous flow of liquid, and the laser beam could be replaced by an electron beam. See col. 6, lines 21-28.

Wang discloses an x-ray microscope for investigating materials, especially biological specimens, utilizing a focused accelerated beam of electrons within an evacuated chamber,

striking a metal foil within the chamber and exposing a specimen outside the evacuated chamber to x-rays generated in the metal foil. Wang does not teach or suggest an x-ray source comprised of a fluid jet or stream in combination with a radiation beam.

As explained in Applicant's specification, the embodiment in which the cross-section of the fluid jet in the direction of the focused beam is smaller than that in the direction transversely thereof, is of importance in all cases where the particle beam has a width which is larger than approximately the penetration depth into the fluid jet. If a fluid jet having a circular cross-section were used in such circumstances, the X-rays generated in a comparatively thin region at the surface of the jet would be absorbed in the interior of the fluid jet again, so that a useful yield of the X-rays would be lost. This adverse effect is strongly mitigated or even avoided when a "flattened" fluid jet is used. See the last paragraph on page 2 of the specification.

None of the cited references teach or suggest such a 'flattened' fluid jet, and accordingly it is urged that the rejection should be withdrawn.

Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Hertz in view of Noda as applied above, and further in view of Wang and Iketaki.

Wang fails to disclose any details of the electron gun, so that use of an electron gun from a cathode ray tube is not suggested. Furthermore, Wang does not employ a fluid target or a condenser lens between the target and the sample.

Iketaki discloses an x-ray microscope (Fig. 7) including a source (21-23), a sample (27) and a condenser lens (24) between the source and the sample. However, the source comprises a

source of laser radiation (21) and a target (23) positioned upstream of the sample (27).

Since Wang and Iketaki use different sources to generate X-rays, and thus position the targets differently, the teachings of the two references are incompatible.

Specifically, Wang uses an electron beam, and positions the target (12) adjacent to the sample (14). Thus, there is no need for a condenser lens between the target and the sample.

Iketaki uses a laser beam and a target positioned upstream of the sample, so that a condenser lens is needed to focus the beam from the target onto the sample.

The skilled artisan would therefore not be led to insert a condenser lens between the target and sample of Wang in view of the teachings of Iketaki.

Accordingly, the rejection of claim 5 is in error and should be withdrawn.

In conclusion, Applicant respectfully requests that the Examiner withdraw the rejections of record, and allow all the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,



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